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FILE COVERS 1907 - 18 Mar 2008 VOL 148 ISS 12  
FILE LAST UPDATED: 17 Mar 2008 (20080317/ED)

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This file contains CAS Registry Numbers for easy and accurate  
substance identification.

=> d que  
L53 8 SEA FILE=REGISTRY ABB=ON (108-18-9/BI OR 108-67-8/BI OR  
111-26-2/BI OR 12003-65-5/BI OR 1309-48-4/BI OR 7324-58-5/BI  
OR 7440-21-3/BI OR 7440-22-4/BI)  
L58 STR

Ag 1

## NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 1

## STEREO ATTRIBUTES: NONE

L60 STR



## NODE ATTRIBUTES:

CONNECT IS EI RC AT 1  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED  
 ECOUNT IS M2-X6 C AT 1

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 4

## STEREO ATTRIBUTES: NONE

L62	172 SEA FILE=REGISTRY SSS FUL L60 AND L58
L63	113 SEA FILE=REGISTRY ABB=ON L62 NOT 1-20/NR
L64	57 SEA FILE=REGISTRY ABB=ON L63 AND 1-2/NC
L65	51 SEA FILE=REGISTRY ABB=ON L64 NOT P/ELS
L66	1 SEA FILE=REGISTRY ABB=ON L65 AND L53
L67	1 SEA FILE=REGISTRY ABB=ON HEXYLAMINE/CN
L68	1 SEA FILE=REGISTRY ABB=ON ISOBUTYLAMINE/CN
L69	1 SEA FILE=REGISTRY ABB=ON DI-SEC-BUTYLAMINE/CN
L70	1 SEA FILE=REGISTRY ABB=ON TRIETHYLAMINE/CN
L71	1 SEA FILE=REGISTRY ABB=ON BENZYLAMINE/CN
L72	1 SEA FILE=REGISTRY ABB=ON ETHANOLAMINE/CN
L73	1 SEA FILE=REGISTRY ABB=ON DIISOPROPYLAMINE/CN
L74	8 SEA FILE=REGISTRY ABB=ON (L66 OR L67 OR L68 OR L69 OR L70 OR L71 OR L72 OR L73)
L75	1 SEA FILE=REGISTRY ABB=ON ACETONITRILE/CN
L76	1 SEA FILE=REGISTRY ABB=ON VALERONITRILE/CN
L77	1 SEA FILE=REGISTRY ABB=ON BENZONITRILE/CN
L78	1 SEA FILE=REGISTRY ABB=ON PROPIONITRILE/CN
L79	4 SEA FILE=REGISTRY ABB=ON (L75 OR L76 OR L77 OR L78)
L80	277 SEA FILE=HCAPLUS ABB=ON L65
L81	80379 SEA FILE=HCAPLUS ABB=ON L74
L82	52087 SEA FILE=HCAPLUS ABB=ON L79
L83	8 SEA FILE=HCAPLUS ABB=ON L80 AND (CVD OR CHEM?(2A)VAPOR?)
L86	6 SEA FILE=HCAPLUS ABB=ON L83 AND (L81 OR L82)
L87	10 SEA FILE=HCAPLUS ABB=ON L80 AND FILM?(3A)DEPOSIT?
L88	6 SEA FILE=HCAPLUS ABB=ON L87 AND (L81 OR L82)
L89	5 SEA FILE=HCAPLUS ABB=ON (L83 OR L87) AND (?AMINE? OR ?NITRILE?)
	)
L96	11 SEA FILE=HCAPLUS ABB=ON L83 OR L86 OR L88 OR L89
L101	13 SEA FILE=HCAPLUS ABB=ON (SILVER OR AG) (3A)?CARBOXYLAT? AND FILM?(3A)DEPOSIT?

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3

L102 17 SEA FILE=HCAPLUS ABB=ON (SILVER OR AG) (3A)?CARBOXYLAT? AND  
(CVD OR CHEM? (3A)VAPOR?)

L103 1 SEA FILE=HCAPLUS ABB=ON (L101 OR L102) AND (?AMINE? OR  
?NITRILE?)

L104 2279 SEA FILE=HCAPLUS ABB=ON "CARBOXYLIC ACIDS, PROCESSES"+NT,PFT/C  
T

L105 13 SEA FILE=HCAPLUS ABB=ON L104(L)SILVER

L106 1 SEA FILE=HCAPLUS ABB=ON L105 AND FILM? (3A)DEPOSIT?

L107 1 SEA FILE=HCAPLUS ABB=ON L105 AND (CVD OR CHEM? (3A)VAPOR?)

L108 16 SEA FILE=HCAPLUS ABB=ON (SILVER OR AG) (3A)?CARBOXYLIC? AND  
FILM? (3A)DEPOSIT?

L109 6 SEA FILE=HCAPLUS ABB=ON (SILVER OR AG) (3A)?CARBOXYLIC? AND  
(CVD OR CHEM? (3A)VAPOR?)

L110 13 SEA FILE=HCAPLUS ABB=ON L96 OR L103 OR L106 OR L107 OR L109

L111 3 SEA FILE=HCAPLUS ABB=ON (L101 OR L102 OR L108 OR L109) AND  
(L81 OR L82)

L112 13 SEA FILE=HCAPLUS ABB=ON L110 OR L111

=> d l112 ibib abs ind hitstr 1-13

L112 ANSWER 1 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2006:1356624 HCAPLUS Full-text  
DOCUMENT NUMBER: 146:105413  
TITLE: CVD-deposited composite  
films with metal antimicrobial agent and TiO<sub>2</sub>  
photocatalyst for protection or decontamination of  
substrates  
INVENTOR(S): Bedel, Laurent; Thollon, Stephanie; Emieux, Fabrice;  
Krebs, Thierry  
PATENT ASSIGNEE(S): Commissariat a l'Energie Atomique, Fr.  
SOURCE: Fr. Demande, 23pp.  
CODEN: FRXXBL  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2887560	A1	20061229	FR 2005-51799	20050628
FR 2887560	B1	20071012		
WO 2007000556	A2	20070104	WO 2006-FR50630	20060626
WO 2007000556	A3	20070524		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW			
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA			

PRIORITY APPLN. INFO.: FR 2005-51799 A 20050628  
AB A substrate (such as glass or silicon) is coated with a composite coating  
based on a metal having antimicrobial activity (such as Ag) and of a  
semiconductor oxide having a photocatalytic activity (such as TiO<sub>2</sub>). The

composite films are suitable for the protection or decontamination of substrate from micro-organisms.

CC 57-2 (Ceramics)  
Section cross-reference(s): 10, 67

ST silver antimicrobial titania photocatalytic composite film silicon glass substrate

IT Ceramic composites  
Decontamination  
Glass substrates  
Photolysis catalysts  
(CVD-deposited composite films with metal antimicrobial agent and TiO<sub>2</sub> photocatalyst for protection or decontamination of substrates)

IT Vapor deposition process  
(chemical; CVD-deposited composite films with metal antimicrobial agent and TiO<sub>2</sub> photocatalyst for protection or decontamination of substrates)

IT Antimicrobial agents  
(composite films; CVD-deposited composite films with metal antimicrobial agent and TiO<sub>2</sub> photocatalyst for protection or decontamination of substrates)

IT Ceramic coatings  
(composites, antimicrobial and photocatalytic; CVD-deposited composite films with metal antimicrobial agent and TiO<sub>2</sub> photocatalyst for protection or decontamination of substrates)

IT 7440-22-4, Silver, uses 7440-50-8, Copper, uses 7782-49-2, Selenium, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(antimicrobial agent; CVD-deposited composite films with metal antimicrobial agent and TiO<sub>2</sub> photocatalyst for protection or decontamination of substrates)

IT 13463-67-7, Titanium oxide (TiO<sub>2</sub>), uses  
RL: CAT (Catalyst use); USES (Uses)  
(photocatalyst; CVD-deposited composite films with metal antimicrobial agent and TiO<sub>2</sub> photocatalyst for protection or decontamination of substrates)

IT 546-68-9, Titanium tetrakisopropoxide 7324-59-5, Silver Pivalate  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(precursor; CVD-deposited composite films with metal antimicrobial agent and TiO<sub>2</sub> photocatalyst for protection or decontamination of substrates)

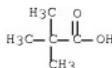
IT 108-18-9, Diisopropylamine 108-67-8, Mesitylene, uses  
1330-20-7, Xylene, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(solvent; CVD-deposited composite films with metal antimicrobial agent and TiO<sub>2</sub> photocatalyst for protection or decontamination of substrates)

IT 7440-21-3, Silicon, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(substrates; CVD-deposited composite films with metal antimicrobial agent and TiO<sub>2</sub> photocatalyst for protection or decontamination of substrates)

IT 7324-58-5, Silver Pivalate  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(precursor; CVD-deposited composite films with metal antimicrobial agent and TiO<sub>2</sub> photocatalyst for protection or decontamination of substrates)

RN 7324-58-5 HCPLUS

CN Propanoic acid, 2,2-dimethyl-, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

IT 108-18-9, Diisopropylamine  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (solvent; CVD-deposited composite films  
 with metal antimicrobial agent and TiO<sub>2</sub> photocatalyst for protection or  
 decontamination of substrates)  
 RN 108-18-9 HCAPLUS  
 CN 2-Propanamine, N-(1-methylethyl)- (CA INDEX NAME)

1-Pr—NH—Pr-1

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L112 ANSWER 2 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 20061634026 HCAPLUS [Full-text](#)  
 DOCUMENT NUMBER: 145:116142  
 TITLE: Preparation of silver or silver alloy nanoparticles on a substrate by chemical vapor deposition  
 INVENTOR(S): Thollon, Stephanie; Luc, Fabien; Barrault, Joel;  
 Valance, Sabine; Guelou, Erwan  
 PATENT ASSIGNEE(S): Commissariat a l'Energie Atomique, Fr.; Centre National de la Recherche Scientifique; Universite de Poitiers  
 SOURCE: Fr. Demande, 47 pp.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2880036	A1	20060630	FR 2004-53179	20041223
FR 2880036	B1	20070907		
WO 2006070130	A2	20060706	WO 2005-FR3264	20051223
WO 2006070130	A3	20070405		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA

EP 1828431 A2 20070905 EP 2005-850603 20051223

R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU

CN 101128619 A 20080220 CN 2005-80048631 20070823

PRIORITY APPLN. INFO.: FR 2004-53179 A 20041223  
WO 2005-FR3264 W 20051223

AB A procedure is disclosed for chemical vapor deposition Ag or Ag alloy nanoparticles dispersed on a substrate. The deposition is carried out by using  $\geq 1$  Ag organometallic precursor in the presence of a gas mixture containing >50 volume% oxidizing reactive gas. The substrate contains  $\geq 1$  surface on which the Ag or ag alloy nanoparticles are dispersed. The resulting product is suitable for catalysts, optical and electronic devices, and H<sub>2</sub>-permeable membranes.

CC 78-1 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 45, 52, 67, 76

ST silver nanoparticle chem vapor deposition; catalyst silver nanoparticle; membrane hydrogen permeable silver nanoparticle; electronic device silver nanoparticle; optical device silver nanoparticle  
IT Membranes, nonbiological  
(H<sub>2</sub>-permeable; preparation of silver or silver alloy nanoparticles on substrate by chemical vapor deposition in production of)

IT Zeolites (synthetic), uses

RL: CAT (Catalyst use); USES (Uses)  
(catalyst support for silver or silver alloy nanoparticles)

IT Vapor deposition process  
(chemical; in preparation of silver or silver alloy nanoparticles on substrate)

IT Vapor deposition process  
(plasma; in preparation of silver or silver alloy nanoparticles on substrate)

IT Amines, uses

RL: TEM (Technical or engineered material use); USES (Uses)  
(polyamines, nonpolymeric; solvent for preparation of silver or silver alloy nanoparticles on substrate by chemical vapor deposition)

IT Nanoparticles

(preparation of silver or silver alloy nanoparticles on substrate by chemical vapor deposition)

IT Dehydrogenation catalysts

Electronics

Epoxydation catalysts

Hydrogenation catalysts

Optical equipment

Oxidation catalysts

Reforming catalysts

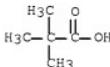
(preparation of silver or silver alloy nanoparticles on substrate by chemical vapor deposition in production of)

IT Silver alloy, base

RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process)  
(preparation of silver or silver alloy nanoparticles on substrate by chemical vapor deposition)

IT 1306-38-3, Ceria (CeO<sub>2</sub>), uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7440-21-3, Silicon, uses 12597-69-2, Steel, uses

- RL: CAT (Catalyst use); USES (Uses)  
 (catalyst support for silver or silver alloy nanoparticles)
- IT 124-38-9, Carbon dioxide, uses 7440-37-1, Argon, uses 7440-59-7,  
 Helium, uses 7727-37-9, Nitrogen, uses 7782-44-7, Oxygen, uses  
 10028-15-6, Ozone, uses
- RL: TEM (Technical or engineered material use); USES (Uses)  
 (in controlled atmospheric for preparation of silver or silver alloy  
 nanoparticles  
 on substrate by chemical vapor deposition)
- IT 7439-88-5, Iridium, uses 7440-05-3, Palladium, uses 7440-06-4,  
 Platinum, uses 7440-16-6, Rhodium, uses 7440-44-0, Carbon, uses
- RL: MOA (Modifier or additive use); USES (Uses)  
 (in preparation of silver alloy nanoparticles on substrate by chem  
 . vapor deposition)
- IT 7324-58-5, Silver pivalate 22466-43-9
- RL: RCT (Reactant); RACT (Reactant or reagent)  
 (precursor in preparation of silver or silver alloy nanoparticles on  
 substrate by chemical vapor deposition)
- IT 7440-22-4F, Silver, preparation
- RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
 process); PNU (Preparation, unclassified); PREP (Preparation); PROC  
 (Process)  
 (preparation of silver or silver alloy nanoparticles on substrate by  
 chemical vapor deposition)
- IT 75-05-8, Acetonitrile, uses 78-81-9,  
 Isobutylamine 100-46-9, Benzylamine, uses  
 100-47-0, Benzonitrile, uses 107-12-0,  
 Propionitrile 108-18-9, Diisopropylamine  
 108-67-8, Mesitylene, uses 108-88-3, Toluene, uses 110-59-8,  
 Valeronitrile 110-82-7, Cyclohexane, uses 111-26-2, n-  
 Hexylamine 111-65-9, n-Octane, uses 121-44-8,  
 Triethylamine, uses 141-43-5, Ethanolamine,  
 uses 626-23-3, Di-sec-butylamine 1330-20-7, Xylene,  
 uses
- RL: TEM (Technical or engineered material use); USES (Uses)  
 (solvent for preparation of silver or silver alloy nanoparticles on  
 substrate by chemical vapor deposition)
- IT 7324-58-5, Silver pivalate
- RL: RCT (Reactant); RACT (Reactant or reagent)  
 (precursor in preparation of silver or silver alloy nanoparticles on  
 substrate by chemical vapor deposition)
- RN 7324-58-5 HCPLUS
- CN Propanoic acid, 2,2-dimethyl-, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

- IT 75-05-8, Acetonitrile, uses 78-81-9,  
 Isobutylamine 100-46-9, Benzylamine, uses  
 100-47-0, Benzonitrile, uses 107-12-0,  
 Propionitrile 108-18-9, Diisopropylamine

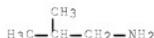
110-59-8, Valeronitrile 111-26-2, n-  
Hexylamine 121-44-8, Triethylamine, uses  
141-43-5, Ethanolamine, uses 626-23-3, Di-sec-  
butylamine  
RL: TEM (Technical or engineered material use); USES (Uses)  
(solvent for preparation of silver or silver alloy nanoparticles on  
substrate by chemical vapor deposition)

RN 75-05-8 HCPLUS

CN Acetonitrile (CA INDEX NAME)



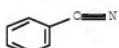
RN 78-81-9 HCPLUS  
CN 1-Propanamine, 2-methyl- (CA INDEX NAME)



RN 100-46-9 HCPLUS  
CN Benzenemethanamine (CA INDEX NAME)



RN 100-47-0 HCPLUS  
CN Benzonitrile (CA INDEX NAME)



RN 107-12-0 HCPLUS  
CN Propanenitrile (CA INDEX NAME)



RN 108-18-9 HCPLUS  
CN 2-Propanamine, N-(1-methylethyl)- (CA INDEX NAME)



RN 110-59-8 HCPLUS

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CN Pentanenitrile (CA INDEX NAME)



RN 111-26-2 HCAPLUS  
CN 1-Hexanamine (CA INDEX NAME)



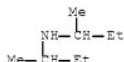
RN 121-44-8 HCAPLUS  
CN Ethanamine, N,N-diethyl- (CA INDEX NAME)



RN 141-43-5 HCAPLUS  
CN Ethanol, 2-amino- (CA INDEX NAME)



RN 626-23-3 HCAPLUS  
CN 2-Butanamine, N-(1-methylpropyl)- (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L112 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:1231398 HCAPLUS Full-text

DOCUMENT NUMBER: 144:342543

TITLE: New monophosphine coordinated silver carboxylates: synthesis, characterization and thermal stability  
Han, Jian-Lin; Yang, Bao-Hai; Yan, Li-Jun; Shen, Ying-Zhong; Pan, Yi

AUTHOR(S):

CORPORATE SOURCE: State Key Lab of Coordination Chemistry, School of Chemistry and Chemical Engineering, Nanjing University, Nanjing, 210093, Peop. Rep. China

SOURCE: Wuji Huaxue Xuebao (2005), 21(11), 1710-1714

PUBLISHER: CODEN: WHUXEO; ISSN: 1001-4861  
Wuji Huaxue Xuebao Bianjibu

DOCUMENT TYPE:

Journal

LANGUAGE:

English

OTHER SOURCE(S):

CASREACT 144:342543

AB Diphenyl(2-methoxyphenyl)phosphine-coordinated silver(I) carboxylates [Ag(O<sub>2</sub>CR)(L)] (L = diphenyl(2-methoxyphenyl)phosphine, R = CH<sub>3</sub>, CH<sub>3</sub>CH<sub>2</sub>, i-Pr, EtOCH<sub>2</sub>, p-CH<sub>3</sub>OCH<sub>2</sub>H, CH<sub>3</sub>CH:CH, Me2C:CH, ClCH<sub>2</sub>) were synthesized by reaction of L with the related silver carboxylates in CHCl<sub>3</sub>. The complexes were obtained as white solids in high yields and their structures were characterized by elemental anal., <sup>1</sup>H NMR, <sup>13</sup>C NMR, <sup>31</sup>P NMR, and IR spectroscopy. The thermal stability of these complexes was studied by TGA. These complexes can be used in the growth of metal thin films via aerosol-assisted CVD (AACVD) techniques (no data).

CC 78-7 (Inorganic Chemicals and Reactions)

ST silver methoxyphenylphosphine carboxylate prep thermal stability

IT Carboxylic acids, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(complexes, silver; preparation and thermal stability of silver(I)  
methoxyphenyldiphenylphosphine carboxylate complexes)

IT Thermal decomposition

Thermal stability

(of silver(I) methoxyphenyldiphenylphosphine carboxylate complexes)

IT 563-63-3, Silver acetate 5489-14-5, Silver propionate

24418-71-1, Silver isobutyrate 55806-37-6, Silver chloroacetate

61645-93-0, Silver p-anisate 87143-31-5, Silver crotonate

175841-15-3, Silver ethoxyacetate 208391-39-3, Silver senecioate

RL: RCT (Reactant); RACT (Reactant or reagent)  
(for preparation of silver(I) methoxyphenyldiphenylphosphine carboxylate  
complex)

IT 53111-20-9, 2-Methoxyphenyldiphenylphosphine

RL: RCT (Reactant); RACT (Reactant or reagent)

(for preparation of silver(I) methoxyphenyldiphenylphosphine carboxylate  
complexes)

IT 880132-23-0P 880132-24-1P 880132-25-2P 880132-26-3P 880132-27-4P

880132-28-5P 880132-29-6P 880132-30-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and thermal stability of)IT 5489-14-5, Silver propionate 24418-71-1, Silver  
isobutyrate 87143-31-5, Silver crotonate 208391-39-3,

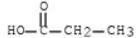
Silver senecioate

RL: RCT (Reactant); RACT (Reactant or reagent)

(for preparation of silver(I) methoxyphenyldiphenylphosphine carboxylate  
complex)

RN 5489-14-5 HCPLUS

CN Propanoic acid, silver(1+) salt (9CI) (CA INDEX NAME)



● Ag(I)

RN 24418-71-1 HCPLUS

CN Propanoic acid, 2-methyl-, silver(1+) salt (1:1) (CA INDEX NAME)



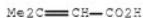
● Ag(I)

RN 87143-31-5 HCPLUS  
 CN 2-Butenoic acid, silver(1+) salt (9CI) (CA INDEX NAME)



● Ag(I)

RN 208391-39-3 HCPLUS  
 CN 2-Butenoic acid, 3-methyl-, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L112 ANSWER 4 OF 13 HCPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2004:800865 HCPLUS Full-text  
 DOCUMENT NUMBER: 141:304669  
 TITLE: Process for the CVD deposition of a silver film on a substrate  
 INVENTOR(S): Decams, Jean Emmanuel; Guillou, Herve; Doppelt, Pascal  
 PATENT ASSIGNEE(S): Centre National De La Recherche Scientifique CNRS, Fr.; Qualiflow SA  
 SOURCE: Fr. Demande, 15 pp.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2852971	A1	20041001	FR 2003-3613	20030325
FR 2852971	B1	20050603		
WO 2004087988	A1	20041014	WO 2004-FR678	20040319
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

EP 1606429 A1 20051221 EP 2004-742294 20040319

EP 1606429 B1 20071226

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK

AT 382105 T 20080115 AT 2004-742294 20040319

US 2007148345 A1 20070628 US 2006-550459 20061212

PRIORITY APPLN. INFO.: FR 2003-3613 A 20030325  
WO 2004-FR678 W 20040319

OTHER SOURCE(S): MARPAT 141:304669

AB The invention relates to Ag thin film deposition on various substrates, in particular on superconductor substrates. The process consists in carrying out a Ag deposition by CVD on a substrate using a solution of Ag precursor. The Ag precursor is carboxylate of RCO<sub>2</sub>Ag in which R is a linear or branched alkyl radical having from 3 to 7 atoms of carbon, used in the form of a solution in an organic liquid. The concentration of precursor of the solution is between 0.01 and 0.6 M. The organic liquid comprises an amine and/or a nitrile, and possibly a solvent whose temperature of evaporation is lower than the temperature of decomposition of the precursor. The percentage in volume of the amine and/or nitrile in the organic liquid is higher than 0.1%.

IC ICM C23C016-448

ICS C23C016-16

CC 75-1 (Crystallography and Liquid Crystals)

Section cross-reference(s): 76

ST CVD silver film carboxylate precursor

amine nitrile org soin

IT Vapor deposition process

(chemical; process for CVD deposition of  
silver film on substrate)

IT Carboxylic acids, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
process); PROC (Process)

(esters, silver; process for CVD deposition  
of silver film on substrate)

IT Films

Ultrathin films  
(process for CVD deposition of silver film  
on substrate)

IT Amines, processes

Nitriles, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
process); PROC (Process)

(process for CVD deposition of silver film  
on substrate)

IT Carboxylic acids, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
process); PROC (Process)

(salts, silver; process for CVD deposition  
of silver film on substrate)

IT Superconductors

(substrate; process for CVD deposition of silver  
film on substrate)

IT 108-18-9, Diisopropylamine 108-67-8, Mesitylene,

processes 111-26-2, Hexylamine 7324-58-5,

Silver pivalate

RL: CPS (Chemical process); PEP (Physical, engineering or chemical

process); PROC (Process)  
(process for CVD deposition of silver film  
on substrate)

IT 7440-22-4P, Silver, processes  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(process for CVD deposition of silver film  
on substrate)

IT 1309-48-4, Magnesia, processes 7440-21-3, Silicon, processes  
12003-65-5, Aluminum lanthanum oxide(allao3)  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
process); PROC (Process)  
(substrate; process for CVD deposition of silver  
film on substrate)

IT 108-18-9, Diisopropylamine 111-26-2,  
Hexylamine 7324-58-5, Silver pivalate  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
process); PROC (Process)  
(process for CVD deposition of silver film  
on substrate)

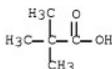
RN 108-18-9 HCPLUS  
CN 2-Propanamine, N-(1-methylethyl)- (CA INDEX NAME)

1-Pr-NH-Pr-1

RN 111-26-2 HCPLUS  
CN 1-Hexanamine (CA INDEX NAME)

H2N-(CH2)5-Me

RN 7324-58-5 HCPLUS  
CN Propanoic acid, 2,2-dimethyl-, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L112 ANSWER 5 OF 13 HCPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2004:358492 HCPLUS [Full-text](#)  
DOCUMENT NUMBER: 142:67907  
TITLE: Structural characteristics of perfluorinated  
carboxylates of Ag(I) with tertiary phosphines and  
their application in CVD of metallic layers

AUTHOR(S): Szlyk, E.; Szymanska, I.; Piszczeck, P.; Golinski, A.; Chaberski, M.

CORPORATE SOURCE: Faculty of Chemistry, Nicolaus Copernicus University, Torun, 87-100, Pol.

SOURCE: Monograph Series of the International Conferences on Coordination Chemistry held periodically at Smolenice in Slovakia (2003), 6(Progress in Coordination and Bioinorganic Chemistry), 343-348

CODEN: MSICF5; ISSN: 1335-308X

PUBLISHER: Slovak Technical University Press

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:67907

AB New Ag(I) complexes with aliphatic perfluorinated carboxylates [R'COOMPR3], where R' = CF3, C2F5, C3F7, C4F9, C7F15 and tertiary phosphines P(OR)3, PR3; R = Me, Et and diphosphines (Ph2P(CH2)1-2Ph2 = dppm, dppe) were obtained and their spectroscopic 13C, 19F, 31P NMR, IR, MS and thermal properties studied. NMR and IR are in favor of the bridging carboxylates and monodentately bonded P(OR)3, PR3, whereas bridging dppm and chelating dppe suggest the polymeric structure. Thermal decomposition is a multistage process, which in N and air yields metallic Ag. Temperature of Ag formation depends on the type of phosphine and length of perfluorinated chain. Chemical Vapor Deposition in hot wall reactor yields Ag nanometric layers from the obtained Ag(I) complexes, which can be treated as a new class of Ag precursors. The morphol. and composition of the nanolayers were characterized with XRD, XPS, SEM, STEM and relations between thickness of the metallic layer and type of precursor are discussed.

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 75

ST silver perfluorinated carboxylate phosphine prepn potential CVD precursor

IT Perfluoro compounds

RL: SPN (Synthetic preparation); PREP (Preparation)  
(carboxylic acids, silver complexes; preparation of Ag(I) perfluorinated carboxylate complexes with tertiary phosphines and their potential application in CVD of metallic layers)

IT Vapor deposition process

(chemical; preparation of Ag(I) perfluorinated carboxylate complexes with tertiary phosphines and their potential application in CVD of metallic layers)

IT Carboxylic acids, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)  
(perfluoro, silver complexes; preparation of Ag(I) perfluorinated carboxylate complexes with tertiary phosphines and their potential application in CVD of metallic layers)

IT 198564-30-6P 207843-83-2P 496968-64-0P 496968-65-1P 496968-66-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and thermal decomposition of Ag(I) perfluorinated carboxylate complexes with tertiary phosphines and their potential application in CVD of metallic layers)

IT 496968-63-9P 496968-67-3P 810662-11-4P 810662-12-5P 810662-13-6P  
810662-14-7P 810662-15-8P 810662-16-9P 810662-17-0P 810662-18-1P  
810662-19-2P 810662-20-5P 810662-21-6P 810662-22-7P 810662-23-8P  
810662-24-9P 810662-25-0P 810662-26-1P 810662-27-2P 810662-28-3P  
810662-29-4P 810662-30-7P 810662-31-8P 810662-32-9P 810662-33-0P  
810662-34-1P 810662-35-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of Ag(I) perfluorinated carboxylate complexes with tertiary phosphines and their potential application in CVD of metallic

layers)  
IT 121-45-9, Trimethyl phosphite 122-52-1, Triethyl phosphite 554-70-1,  
Triethylphosphine 594-09-2, Trimethylphosphine 1663-45-2,  
1,2-Bis(diphenylphosphino)ethane 2071-20-7,  
Bis(diphenylphosphino)methane 38845-51-1 55939-48-5 496968-68-4  
496968-69-5 496968-70-8 810662-36-3 810662-37-4  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for preparation of Ag(I) perfluorinated carboxylate complexes  
with tertiary phosphines)  
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L112 ANSWER 6 OF 13 HCPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 20031691984 HCPLUS Full-text  
DOCUMENT NUMBER: 139:314690  
TITLE: Silver thin films deposited by  
injection MOCVD  
AUTHOR(S): Abourida, M.; Guillon, H.; Jimenez, C.; Decams, J. M.;  
Weiss, F.; Valet, O.; Doppelt, P.  
CORPORATE SOURCE: ESPCI, Centre d'Etudes de Chimie Metallurgique  
(CNRS-UFR 2801), CVD Group, Paris, 75231/05, Fr.  
SOURCE: Proceedings - Electrochemical Society (2003),  
2003-8(Chemical Vapor Deposition XVI and EUROCVD 14,  
Volume 2), 938-945  
CODEN: PESODO; ISSN: 0161-6374  
PUBLISHER: Electrochemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB We have investigated the Ag metalization by MOCVD using a mesitylene solution  
of a Ag carboxylate precursor. Ag films were grown on different substrates  
such as SiO<sub>2</sub>/Si, MgO, and glass, by a Jipelec inject liquid delivery and  
vaporization system. N<sub>2</sub> carrier gas and O<sub>2</sub> or H<sub>2</sub> reagent gas were used at a  
reactor pressure of 5-15 Torr with deposition temps. of 225-400°. Different  
characterization methods were carried out on the obtained Ag films. The XRD  
patterns indicated the existence of polycryst. of highly textured metallic Ag.  
We found significant dependence of the surface morphol. on the deposition  
conditions. Overall, a comprehensive study of the dependence of Ag film  
thickness, microstructure and crystallog. orientation on the main process  
parameters was elucidated.

CC 75-1 (Crystallography and Liquid Crystals)

Section cross-reference(s): 56, 76

ST silver film MOCVD texture surface structure cond

IT Glass substrates

Surface structure

Texture (metallographic)

(Ag thin films deposited by injection MOCVD and  
characterized via texture and surface structure)

IT Electric conductivity

Thickness

(Ag thin films deposited by injection MOCVD and  
characterized via thickness and conductivity)

IT Vapor deposition process

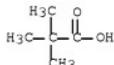
(metalogr.; Ag thin films deposited by injection  
MOCVD and characterized via texture and surface structure)

IT 7440-22-4, Silver, properties

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP  
(Physical process); PROC (Process)

(Ag thin films deposited by injection MOCVD and  
characterized via texture and surface structure)

IT 7324-58-5, Silver pivalate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (precursor; Ag thin films deposited by injection  
 MOCVD and characterized via texture and surface structure)  
 IT 7440-21-3, Silicon, uses 7631-86-9, Silica, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (substrate; Ag thin films deposited by injection  
 MOCVD and characterized via texture and surface structure)  
 IT 7324-58-5, Silver pivalate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (precursor; Ag thin films deposited by injection  
 MOCVD and characterized via texture and surface structure)  
 RN 7324-58-5 HCPLUS  
 CN Propanoic acid, 2,2-dimethyl-, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L112 ANSWER 7 OF 13 HCPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2003:295307 HCPLUS [Full-text](#)  
 DOCUMENT NUMBER: 138:279699  
 TITLE: Method for surface deposition of transition metal films  
 INVENTOR(S): Sharma, Sunity; Narang, Subhash; Bhasin, Kuldip;  
 Sharma, Madan Lal  
 PATENT ASSIGNEE(S): Sri International, USA  
 SOURCE: U.S., 9 pp., Cont.-in-part of U.S. Ser. No. 42,182.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

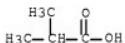
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6548122	B1	20030415	US 1999-444031	19991119
US 5980998	A	19991109	US 1998-42182	19980312
PRIORITY APPLN. INFO.:			US 1997-60711P	P 19970916
			US 1998-42182	A2 19980312
			US 1999-412047	B2 19991004

AB The invention relates to a method for surface deposition of transition metal films. A metal precursor is formed in a process that includes steps of (i) depositing a metal precursor on a substrate; (ii) adding energy to reduce the metal precursor and to precipitate metal on the substrate as a continuous metal layer; and (iii) selecting the metal precursor and the energy such that the purity of the continuous metal layer is greater than 85% and the deposited layer has a similar elec. conductivity to that of a pure metal.

IC ICM B32B003-00

ICS B32B007-00; B32B015-00  
INCL 427559000; 427556000; 427096000; 427552000; 427256000; 427558000;  
427597000; 427555000; 430313000; 430315000  
CC 76-2 (Electric Phenomena)  
Section cross-reference(s): 29, 42, 74  
ST surface deposition transition metal film  
IT Transition metal complexes  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(amide complexes, deposition precursor; method for surface  
deposition of transition metal films)  
IT Transition metal complexes  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(amine, deposition precursor; method for surface  
deposition of transition metal films)  
IT Coordination compounds  
Salts, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(deposition precursor; method for surface deposition of  
transition metal films)  
IT Films  
(elec. conductive; method for surface deposition of  
transition metal films)  
IT Electric conductors  
(films; method for surface deposition of transition  
metal films)  
IT Microwave  
(irradiation, precursor treated by; method for surface deposition  
of transition metal films)  
IT Electric apparatus  
Electric circuits  
(method for surface deposition of transition metal  
films)  
IT Metals, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(method for surface deposition of transition metal  
films)  
IT Lithography  
(offset, precursor applied by; method for surface deposition  
of transition metal films)  
IT Transition metal complexes  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(phosphine, deposition precursor; method for surface deposition  
of transition metal films)  
IT Gravure printing  
Printing (impact)  
Screen printing  
(precursor applied by; method for surface deposition of  
transition metal films)  
IT IR radiation  
(precursor treated by; method for surface deposition of  
transition metal films)  
IT Coating process  
(spray, precursor applied by; method for surface deposition  
of transition metal films)  
IT Transition metal complexes  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(sulfide complexes, deposition precursor; method for surface  
deposition of transition metal films)  
IT Amides, reactions  
Amines, reactions

- Esters, reactions  
Phosphines  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(transition metal complexes, deposition precursor; method for surface deposition of transition metal films)
- IT 108-99-6,  $\beta$ -Picoline 5893-61-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(copper precursor prepared from; method for surface deposition of transition metal films)
- IT 79-31-2, Isobutyric acid  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(gold and silver precursors prepared from; method for surface deposition of transition metal films)
- IT 64-19-7, Glacial acetic acid, reactions 110-86-1, Pyridine, reactions 546-93-0, Magnesium carbonate 13453-07-1, Gold trichloride 54182-83-1, Gold hydroxide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(gold precursor prepared from; method for surface deposition of transition metal films)
- IT 7440-50-8P, Copper, uses  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(method for surface deposition of transition metal films)
- IT 7440-02-0, Nickel, uses 7440-06-4, Platinum, uses 7440-33-7, Tungsten, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses RL: TEM (Technical or engineered material use); USES (Uses)  
(method for surface deposition of transition metal films)
- IT 20667-12-3, Silver oxide 24418-71-1, Silver isobutyrate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(silver precursor prepared from; method for surface deposition of transition metal films)
- IT 24418-71-1, Silver isobutyrate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(silver precursor prepared from; method for surface deposition of transition metal films)
- RN 24418-71-1 HCPLUS  
CN Propanoic acid, 2-methyl-, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L112 ANSWER 8 OF 13 HCPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2003:132151 HCPLUS [Full-text](#)  
DOCUMENT NUMBER: 139:94177  
TITLE: Aerosol-assisted chemical vapour deposition of silver films from adducts of functionalised silver carboxylates

AUTHOR(S): Edwards, Dennis A.; Mahon, Mary F.; Molloy, Kieran C.; Ogrrodnik, Virginie  
CORPORATE SOURCE: Department of Chemistry, University of Bath, Bath, BA2 7AY, UK  
SOURCE: Journal of Materials Chemistry (2003), 13(3), 563-570  
CODEN: JMACEP; ISSN: 0959-9428  
PUBLISHER: Royal Society of Chemistry  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 139:94177

AB Ag carboxylates containing unsatd. groups within the ligand were synthesized [AgO<sub>2</sub>CR, R = CH<sub>2</sub>CN (1), H<sub>2</sub>C:CH (3), H<sub>2</sub>C:CHCH<sub>2</sub>CH<sub>2</sub> (5), Me(H)C:C(Me) (8), Ph(H)C:CH (11)], along with their PPh<sub>3</sub> [AgO<sub>2</sub>CR(PPh<sub>3</sub>)<sub>2</sub>, R = CH<sub>2</sub>CN (2), H<sub>2</sub>C:CH (4), H<sub>2</sub>C:CHCH<sub>2</sub>CH<sub>2</sub> (6), Me(H)C:C(Me) (9), Ph(H)C:CH (12)] and 1,2-bis(phenylthio)ethane adducts [AgO<sub>2</sub>CR(PhSCH<sub>2</sub>CH<sub>2</sub>SPh)<sub>2</sub>, R = H<sub>2</sub>C:CHCH<sub>2</sub>CH<sub>2</sub> (7), Me(H)C:C(Me) (10)]. The structures of 2, 6, 8 and 9 were determined by single crystal x-ray diffraction; the adducts are all four-coordinate at Ag with a chelating carboxylate, while 8 adopts a polymeric structure based on dimeric units and in which an approx. octahedral geometry at Ag is attained by addnl. weak intermol. Ag···O and π-Ag···C:C interactions. Ag films were grown by aerosol-assisted CVD using 6, 7, 9 and 10; no film was obtained with 2, while only a very thin film was generated by 12. Films grown from the S-containing adducts 7 and 10 were rough and poorly reflective, while films from 6 and 9 were of superior quality, being smooth and highly reflective.

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 75

ST crystal structure silver unsatd carboxylate triphenylphosphine; silver unsatd carboxylate triphenylphosphine bisphenylthioethane prepn; film silver unsatd carboxylate precursor; aerosol assisted CVD silver film

IT Films

(aerosol-assisted CVD of silver films from complexes with unsatd. carboxylates with and without triphenylphosphine or bis(phenylthio)ethane)

IT Crystal structure

Molecular structure  
(of silver complexes of unsatd. carboxylates with and without triphenylphosphine)

IT Carboxylic acids, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)  
(unsatd., silver complexes with/without triphenylphosphine or bis(phenylthio)ethane; preparation as CVD precursors)

IT 79-10-7, Acrylic acid, reactions 80-59-1, trans-2,3-Dimethylacrylic acid 140-10-3, trans-Cinnamic acid, reactions 591-80-0, 4-Pentenoic acid  
RL: RCT (Reactant); RACT (Reactant or reagent)

(for preparation of silver complexes of unsatd. carboxylate with and without triphenylphosphine or bis(phenylthio)ethane as CVD precursors)

IT 5651-26-3P 71367-31-2P 488085-36-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(for preparation of silver complexes of unsatd. carboxylate with and without triphenylphosphine or bis(phenylthio)ethane as CVD precursors)

IT 185038-37-3

RL: RCT (Reactant); RACT (Reactant or reagent)  
(for preparation of silver complexes of unsatd. carboxylate with/without triphenylphosphine or bis(phenylthio)ethane as film precursors)

IT 622-20-8, 1,2-Bis(phenylthio)ethane  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(for preparation of silver complexes of unsatd. carboxylates with  
bis(phenylthio)ethane as film precursors)

IT 553628-40-3P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
(Preparation); RACT (Reactant or reagent)  
(polymeric; preparation, crystal structure and reaction for preparation of  
silver  
complexes of unsatd. carboxylate with/without triphenylphosphine or  
bis(phenylthio)ethane as film precursors)

IT 553628-37-8P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
(Preparation); RACT (Reactant or reagent)  
(preparation and crystal structure and thermal decomposition as precursor  
for  
attempted silver film CVD)

IT 553628-39-0P 553628-41-4P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
(Preparation); RACT (Reactant or reagent)  
(preparation and crystal structure and thermal decomposition as precursor  
for  
silver film CVD)

IT 80-59-1DP, trans-2,3-Dimethylacrylic acid, silver bis(phenylthio)ethane  
complex 591-80-0DP, 4-Pentenoic acid, silver bis(phenylthio)ethane  
complex 622-20-8DP, 1,2-Bis(phenylthio)ethane, silver dimethylacrylic  
and pentenoic acid complexes 7440-22-4DP, Silver, dimethylacrylic and  
pentenoic acid bis(phenylthio)ethane complexes 553628-42-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and thermal decomposition as precursor for silver film CVD  
)

IT 553628-38-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and thermal decomposition of)

IT 5651-26-3P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(for preparation of silver complexes of unsatd. carboxylate with and  
without  
triphenylphosphine or bis(phenylthio)ethane as CVD  
precursors)

RN 5651-26-3 HCAPLUS

CN 2-Propenoic acid, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

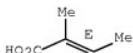
IT 553628-40-3P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
(Preparation); RACT (Reactant or reagent)  
(polymeric; preparation, crystal structure and reaction for preparation of  
silver

complexes of unsatd. carboxylate with/without triphenylphosphine or bis(phenylthio)ethane as film precursors)

RN 553628-40-3 HCPLUS

CN 2-Butenoic acid, 2-methyl-, silver(1+) salt (1:1), (2E)- (CA INDEX NAME)

Double bond geometry as shown.



● Ag(I)

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L112 ANSWER 9 OF 13 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:267015 HCPLUS [Full-text](#)

DOCUMENT NUMBER: 137:39501

TITLE: Low-temperature MOCVD of conducting, micrometer-thick, silver films

AUTHOR(S): Samoilenkova, Sergej; Stefan, Madalina; Wahl, Georg;

Paramonov, Sergej; Kuzmina, Natalia; Kaul, Andrey

CORPORATE SOURCE: TU Braunschweig, IOPW, Braunschweig, D-38108, Germany

SOURCE: Chemical Vapor Deposition (2002), 8(2), 74-78

Published in: *Adv. Mater. (Weinheim, Ger.)*, 14(5)

CODEN: CVDEFX; ISSN: 0948-1907

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ag layers up to 3 μm thick were deposited at 250–510° using a simple powder flash evaporation MOCVD procedure with a Ag pivalate as the volatile precursor. C-free deposits could be obtained at temps. ≥ 310°. A very high deposition rate of 10 μm h<sup>-1</sup> was achieved. The Ag layers were dense and conducting. Properties of Ag pivalate, and the influence of deposition temperature on film microstructure, are discussed. The procedure is a cheap and robust route to Ag coatings.

CC 75-1 (Crystallography and Liquid Crystals)

Section cross-reference(s): 76

ST silver conducting film metalorg CVD microstructure

IT Microstructure

(from low-temperature MOCVD of conducting, micrometer-thick, silver films using silver pivalate precursor)

IT Electric conductors

(low-temperature MOCVD of conducting, micrometer-thick, silver films using silver pivalate precursor)

IT Vapor deposition process

(metalorg.; low-temperature MOCVD of conducting, micrometer-thick, silver films using silver pivalate precursor and characterization)

IT 7324-58-5, Silver pivalate

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(low-temperature MOCVD of conducting, micrometer-thick, silver films using silver pivalate precursor)

IT 7440-22-4, Silver, properties

RL: CPS (Chemical process); PEP (Physical, engineering or chemical

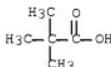
process); PRP (Properties); PROC (Process)  
(low-temperature MOCVD of conducting, micrometer-thick, silver films using  
silver pivalate precursor and characterization)

IT 7324-58-5, Silver pivalate

RL: CPS (Chemical process); PEP (Physical, engineering or chemical  
process); PROC (Process)  
(low-temperature MOCVD of conducting, micrometer-thick, silver films using  
silver pivalate precursor)

RN 7324-58-5 HCPLUS

CN Propanoic acid, 2,2-dimethyl-, silver(1+) salt (1:1) (CA INDEX NAME)



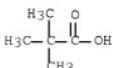
● Ag(I)

REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L112 ANSWER 10 OF 13 HCPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2002:44847 HCPLUS Full-text  
DOCUMENT NUMBER: 136:303124  
TITLE: Aerosol-assisted chemical vapour deposition  
(AACVD) of silver films from  
triorganophosphine adducts of silver  
carboxylates, including the structure of  
[Ag(O2CC3F7)(PPh3)2]  
AUTHOR(S): Edwards, Dennis A.; Harker, Robert M.; Mahon, Mary F.;  
Molloy, Kieran C.  
CORPORATE SOURCE: Department of Chemistry, University of Bath, Bath, BA2  
7AY, UK  
SOURCE: Inorganica Chimica Acta (2002), 328, 134-146  
CODEN: ICHAA3; ISSN: 0020-1693  
PUBLISHER: Elsevier Science S.A.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 136:303124  
AB Silver carboxylates [Ag(O2CR): R = Me, tBu, 2,4,6-Me3C6H2], fluorocarboxylates [Ag(O2CRF): Rf = C3F7, C6F13, C7F15] and their phosphine adducts [Ag(O2CR)·nPR3': R = Me, tBu, 2,4,6-Me3C6H2, R' = Me, Ph, n = 2; R = Me, R' = Me, n = 3; Ag(O2CRF)·2PPh3, Rf = C3F7, C6F13, C7F15] were synthesized, characterized spectroscopically and used as precursors in the aerosol-assisted CVD of silver films. All the phosphine adducts produced films, though in general PMe3 adducts, proved more successful than PPh3 analogs. The fluorocarboxylates and their PPh3 adducts all generated silver films, though the growth rate for the adducts was lower. All these latter films showed carbon impurities while fluorine was also evident in most cases. The x-ray structure of AgO2CC3F7·2PPh3 is also reported.  
CC 78-7 (Inorganic Chemicals and Reactions)  
Section cross-reference(s): 66, 75, 76  
ST silver carboxylate phosphine complex prepн structure  
precursor CVD film; film silver CVD prepн elec  
resistivity reflectivity; thermal decompn stability silver

- carboxylate phosphine complex; crystal structure silver  
fluorobutanoate phosphine complex
- IT Transition metal complexes  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(carboxylic acid, silver; preparation and thermal decomposition and stability of silver(I) carboxylates and their triorganophosphine complexes, and effectiveness as precursors for aerosol-assisted chemical vapor deposition of silver films)
- IT Vapor deposition process  
(chemical; of silver(I) carboxylates and their triorganophosphine complexes as precursors for aerosol-assisted chemical vapor deposition of silver films)
- IT Crystal structure  
Molecular structure  
(of silver perfluorobutanoato triphenylphosphine complex as precursor for aerosol-assisted chemical vapor deposition of silver films)
- IT Thermal decomposition  
Thermal stability  
(of silver(I) carboxylates and their triorganophosphine complexes as precursors for aerosol-assisted chemical vapor deposition of silver films)
- IT Optical reflection  
Sheet resistance  
(preparation and surface properties of silver films prepared by aerosol-assisted chemical vapor deposition of silver(I) carboxylates and their triorganophosphine complexes as precursors)
- IT Films  
(reflective; preparation and surface properties of silver films prepared by aerosol-assisted chemical vapor deposition of silver(I) carboxylates and their triorganophosphine complexes as precursors)
- IT Carboxylic acids, preparation  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(transition metal complexes, silver; preparation and thermal decomposition and stability of silver(I) carboxylates and their triorganophosphine complexes, and effectiveness as precursors for aerosol-assisted chemical vapor deposition of silver films)
- IT 7440-22-4P, Silver, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and surface properties of silver films prepared by aerosol-assisted chemical vapor deposition of silver(I) carboxylates and their triorganophosphine complexes as precursors)
- IT 408510-62-3P  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(preparation, crystal and mol. structure, thermal decomposition and stability,

- and effectiveness as precursor for aerosol-assisted chemical vapor deposition of silver films)
- IT 335-93-3P, Silver(I) perfluorooctanoate 424-05-5P, Silver(I) perfluoroheptanoate 3794-64-7P, Silver(I) perfluorobutyrate 55939-48-5P, Silver(I) perfluorobutyrate dimer  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
 (preparation, reaction with triphenylphosphine, thermal decomposition and stability, and effectiveness as precursor for aerosol-assisted chemical vapor deposition of silver films)
- IT 563-63-3P, Silver(I) acetate 7324-58-5P, Silver(I) pivalate 51750-69-7P, Silver(I) mesitylate  
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
 (preparation, reactions with triorganophosphines, and effectiveness as precursor for aerosol-assisted chemical vapor deposition of silver films)
- IT 66083-49-6P 66083-58-7P 408510-48-5P 408510-50-9P 408510-52-1P 408510-57-6P 408510-60-1P 408510-64-5P 408510-65-6P  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
 (preparation, thermal decomposition and stability, and effectiveness as precursor for aerosol-assisted chemical vapor deposition of silver films)
- IT 75-98-9, Pivalic acid 375-22-4, Perfluorobutyric acid 480-63-7, 2,4,6-Trimethylbenzoic acid 3825-26-1, Ammonium perfluorooctanoate 6130-43-4, Ammonium perfluoroheptanoate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reactant; preparation of silver(I) carboxylates and their triorganophosphine complexes as precursors for aerosol-assisted chemical vapor deposition of silver films)
- IT 7324-58-5P, Silver(I) pivalate  
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
 (preparation, reactions with triorganophosphines, and effectiveness as precursor for aerosol-assisted chemical vapor deposition of silver films)
- RN 7324-58-5 HCPLUS
- CN Propanoic acid, 2,2-dimethyl-, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L112 ANSWER 11 OF 13 HCPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2001:750447 HCPLUS Full-text  
DOCUMENT NUMBER: 136:45856  
TITLE: MOCVD of Ag thin films  
AUTHOR(S): Paramonov, S.; Samoilenkova, S.; Papucha, S.;  
Malkerova, I.; Alikhanyan, A.; Kuzmina, N.; Troyanov,  
S. I.; Kaul, A. R.  
CORPORATE SOURCE: Department of Chemistry, Moscow State University,  
Moscow, 119899, Russia  
SOURCE: Journal de Physique IV: Proceedings (2001), 11(Pr3,  
Thirteenth European Conference on Chemical Vapor  
Deposition, 2001), Pr3/645-Pr3/652  
CODEN: JFICEI; ISSN: 1155-4339  
PUBLISHER: EDP Sciences  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The new mixed ligand complex [(Bu<sub>3</sub>P)Ag(Me<sub>3</sub>CCOO)] (I) is suggested as a precursor for MOCVD of Ag thin films. It was characterized by elemental, TGA and by mass-spectrometry. The gas phase consisted only of monomeric mols. X-ray study shows that the crystal structure (monoclinic, space group C2/c) is built up from dimeric units with van der Waals interactions between them. Ag films were grown on Si and oxide substrates using I and [Ag(Me<sub>3</sub>CCOO)] (II) precursors by CVD technique in presence of O. The dependence of the film thickness, orientation and microstructure on the process parameters was determined. The use of I is at least 20 times more effective (regarding the film thickness) in comparison to that of II.

CC 75-1 (Crystallography and Liquid Crystals)

Section cross-reference(s): 78

ST silver film metalorg CVS precursor silver pivalato butylphosphine

IT Vapor deposition process

(metalorg.; of silver films using silver pivalato tributylphosphine complex or silver pivalate)

IT Crystal structure

Molecular structure

(of silver pivalato tributylphosphine complex)

IT 7324-58-5, Silver(1+) pivalate

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(metalorg. CVD of silver films using precursor)

IT 380376-07-8P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(preparation and crystal structure and use as precursor in metalorg. CVD of silver films)

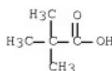
IT 7324-58-5, Silver(1+) pivalate

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(metalorg. CVD of silver films using precursor)

RN 7324-58-5 HCPLUS

CN Propanoic acid, 2,2-dimethyl-, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

- L112 ANSWER 12 OF 13 HCPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1999:776567 HCPLUS Full-text  
DOCUMENT NUMBER: 132:72825  
TITLE: Spectroscopic and thermal studies of silver(I) complexes with aliphatic carboxylates and triphenylphosphine  
AUTHOR(S): Szlyk, E.; Lakomska, I.; Surdykowski, A.; Golinski, A.  
CORPORATE SOURCE: Faculty of Chemistry, Nicholas Copernicus University, Torun, 87-100, Pol.  
SOURCE: Polish Journal of Chemistry (1999), 73(11), 1763-1769  
PUBLISHER: Polish Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Silver(I) complexes with triphenylphosphine and aliphatic carboxylates,  $[Ag_2(PPh_3)_2(\mu\text{-RCOO})_2]$  ( $R = C_2H_5$ ,  $i\text{-Pr}$ ,  $Bu$ ,  $i\text{-Bu}$ ,  $\text{tert}\text{-}Bu$ ), were prepared and characterized with  $^1\text{H}$ ,  $^{13}\text{C}$ ,  $^{31}\text{P}$  NMR and vibrational spectra. Results of spectral anal. are in favor of  $Ag(I)$  trigonal coordination with unidentate bonded triphenylphosphine and bidentate carboxylates, forming bridges between silver(I) ions. Thermal decomposition was studied in 293-973 K range in nitrogen. The multistage decomposition begins with the detachment of carboxylates and is followed by triphenylphosphine dissociation. The final product is metallic silver, formed between 605-683 K.  
CC 78-7 (Inorganic Chemicals and Reactions)  
ST silver aliph carboxylate phosphine dinuclear prepn thermolysis; thermal decompn silver aliph carboxylato phosphine dinuclear  
IT IR spectra  
NMR (nuclear magnetic resonance)  
Thermal decomposition  
(of silver(I) aliphatic carboxylato triphenylphosphine dinuclear complexes)  
IT Transition metal complexes  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(silver aliphatic carboxylic acids; preparation,  $^{13}\text{C}$  and  $^{31}\text{P}$  NMR and IR spectra, and thermal decomposition of silver(I) aliphatic carboxylato triphenylphosphine dinuclear complexes)  
IT 55939-47-4 211387-90-5 253199-65-4 253199-66-5 253199-67-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(for preparation of silver(I) aliphatic carboxylato triphenylphosphine dinuclear complex)  
IT 7440-22-4, Silver, formation (nonpreparative)  
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)  
(formation from thermal decomposition of silver(I) aliphatic carboxylato triphenylphosphine dinuclear complexes)  
IT 253199-61-0P 253199-62-1P 253199-63-2P 253199-64-3P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation,  $^{13}\text{C}$  and  $^{31}\text{P}$  NMR and IR spectra, and thermal decomposition)  
IT 253199-60-9P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation,  $^{13}\text{C}$  and  $^{31}\text{P}$  NMR and IR spectra, and thermal decomposition as potential precursor for CVD purposes)  
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L112 ANSWER 13 OF 13 HCPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1999:660973 HCPLUS Full-text  
DOCUMENT NUMBER: 132:42963  
TITLE: Silver pivalate as a new volatile precursor for thin film deposition  
AUTHOR(S): Kuzmina, N.; Paramonov, S.; Ivanov, R.; Kezko, V.;  
Polamo, K.; Troyanov, S.  
CORPORATE SOURCE: Department of Chemistry, Moscow State University,  
Moscow, 119899, Russia  
SOURCE: Journal de Physique IV: Proceedings (1999), 9(Pr8,  
Proceedings of the Twelfth European Conference on  
Chemical Vapour Deposition, 1999, Vol. 2), 923-928  
CODEN: JFICEI; ISSN: 1155-4339  
PUBLISHER: EDP Sciences  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB For a new volatile Ag(I) precursor, the AgPiv complex (HPiv - 2,2-dimethylpropionic acid) was prepared and characterized by elemental and TGA. Complex AgPiv is moisture stable and has rather low light sensitivity. An x-ray structure determination showed that the crystal structure (triclinic, space group P.hivin.) of AgPiv consists of dimers, connected with each other by bridging Ag-O bonds. There are Ag...Ag contacts within dimers and between polymeric chains. AgPiv can be sublimed under dynamic vacuum (0.01-0.03 torr) at 230-250°. The atomic layer epitaxy expts. on SrS:Ag thin film growth were conducted using AgPiv as volatile precursor.

CC 75-1 (Crystallography and Liquide Crystals)

ST silver pivalate prepn crystal structure precursor film deposition; strontium sulfide silver atomic layer epitaxy silver pivalate precursor

IT Crystal structure

Molecular structure

(of silver pivalate)

IT Atomic layer epitaxy  
(of silver-doped SrS using silver pivalate as precursor)

IT 7440-22-4, Silver, processes

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(atomic layer epitaxy of silver-doped SrS using silver pivalate as precursor)

IT 1314-96-1, Strontium sulfide

RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(atomic layer epitaxy of silver-doped SrS using silver pivalate as precursor)

IT 7324-58-5P, Silver pivalate

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(preparation and crystal structure and properties and precursor for atomic layer epitaxy of silver-doped strontium sulfide)

IT 252350-94-0P

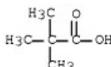
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and stability of)

IT 75-98-9DP, Pivalic acid, silver diisopropylamine complex  
 108-18-9DP, Diisopropylamine, silver pivalato complex  
 7440-22-4DP, Silver, diisopropylamine pivalato complex,  
 preparation  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

IT 7324-58-5P, Silver pivalate  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN  
 (Synthetic preparation); PREP (Preparation); PROC (Process)  
 (preparation and crystal structure and properties and precursor for atomic  
 layer epitaxy of silver-doped strontium sulfide)

RN 7324-58-5 HCPLUS

CN Propanoic acid, 2,2-dimethyl-, silver(1+) salt (1:1) (CA INDEX NAME)

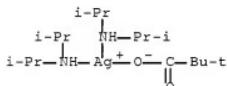


● Ag(I)

IT 252350-94-0P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and stability of)

RN 252350-94-0 HCPLUS

CN Silver, (2,2-dimethylpropanoato-κO)bis[N-(1-methylethyl)-2-  
 propanamine]- (CA INDEX NAME)



IT 108-18-9DP, Diisopropylamine, silver pivalato complex  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

RN 108-18-9 HCPLUS

CN 2-Propanamine, N-(1-methylethyl)- (CA INDEX NAME)

i-Pr—NH—Pr-i

REFERENCE COUNT:

9

THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> => d que

L53            8 SEA FILE=REGISTRY ABB=ON (108-18-9/BI OR 108-67-8/BI OR  
111-26-2/BI OR 12003-65-5/BI OR 1309-48-4/BI OR 7324-58-5/BI  
OR 7440-21-3/BI OR 7440-22-4/BI)  
L58            STR

Ag 1

NODE ATTRIBUTES:  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 1

STEREO ATTRIBUTES: NONE  
L60            STR



NODE ATTRIBUTES:  
CONNECT IS E1 RC AT 1  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED  
ECOUNT IS M2-X6 C AT 1

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 4

STEREO ATTRIBUTES: NONE  
L62            172 SEA FILE=REGISTRY SSS FUL L60 AND L58  
L63            113 SEA FILE=REGISTRY ABB=ON L62 NOT 1-2/NR  
L64            57 SEA FILE=REGISTRY ABB=ON L63 AND 1-2/NC  
L65            51 SEA FILE=REGISTRY ABB=ON L64 NOT P/ELS  
L66            1 SEA FILE=REGISTRY ABB=ON L65 AND L53  
L67            1 SEA FILE=REGISTRY ABB=ON HEXYLAMINE/CN  
L68            1 SEA FILE=REGISTRY ABB=ON ISOBUTYLAMINE/CN  
L69            1 SEA FILE=REGISTRY ABB=ON DI-SEC-BUTYLAMINE/CN  
L70            1 SEA FILE=REGISTRY ABB=ON TRIETHYLAMINE/CN  
L71            1 SEA FILE=REGISTRY ABB=ON BENZYLAMINE/CN  
L72            1 SEA FILE=REGISTRY ABB=ON ETHANOLAMINE/CN  
L73            1 SEA FILE=REGISTRY ABB=ON DIISOPROPYLAMINE/CN  
L74            8 SEA FILE=REGISTRY ABB=ON (L66 OR L67 OR L68 OR L69 OR L70 OR  
L71 OR L72 OR L73)  
L75            1 SEA FILE=REGISTRY ABB=ON ACETONITRILE/CN  
L76            1 SEA FILE=REGISTRY ABB=ON VALERONITRILE/CN  
L77            1 SEA FILE=REGISTRY ABB=ON BENZONITRILE/CN  
L78            1 SEA FILE=REGISTRY ABB=ON PROPIONITRILE/CN  
L79            4 SEA FILE=REGISTRY ABB=ON (L75 OR L76 OR L77 OR L78)  
L80            277 SEA FILE=HCAPLUS ABB=ON L65  
L81            80379 SEA FILE=HCAPLUS ABB=ON L74  
L82            52087 SEA FILE=HCAPLUS ABB=ON L79  
L83            8 SEA FILE=HCAPLUS ABB=ON L80 AND (CVD OR CHEM?(2A)VAPOR?)

L86 6 SEA FILE=HCAPLUS ABB=ON L83 AND (L81 OR L82)  
L87 10 SEA FILE=HCAPLUS ABB=ON L80 AND FILM?(3A)DEPOSIT?  
L88 6 SEA FILE=HCAPLUS ABB=ON L87 AND (L81 OR L82)  
L89 5 SEA FILE=HCAPLUS ABB=ON (L83 OR L87) AND (?AMINE? OR ?NITRILE?)  
L90 5 SEA FILE=HCAPLUS ABB=ON KUZMINA N?/AU AND PARAMONOV S?/AU  
L91 4 SEA FILE=HCAPLUS ABB=ON L80 AND L90  
L93 6 SEA FILE=HCAPLUS ABB=ON L80 AND (KUZIMA N?/AU OR PARAMONOV S?/AU OR KEZKO V?/AU OR POLAMO K?/AU OR TROYANOV S?/AU)  
L94 14 SEA FILE=HCAPLUS ABB=ON (AG OR SILVER) AND (KUZIMA N?/AU OR PARAMONOV S?/AU OR KEZKO V?/AU OR POLAMO K?/AU OR TROYANOV S?/AU)  
L95 14 SEA FILE=HCAPLUS ABB=ON L91 OR L93 OR L94  
L96 11 SEA FILE=HCAPLUS ABB=ON L83 OR L86 OR L88 OR L89  
L101 13 SEA FILE=HCAPLUS ABB=ON (SILVER OR AG) (3A)?CARBOXYLAT? AND FILM?(3A)DEPOSIT?  
L102 17 SEA FILE=HCAPLUS ABB=ON (SILVER OR AG) (3A)?CARBOXYLAT? AND (CVD OR CHEM?(3A)VAPOR?)  
L103 1 SEA FILE=HCAPLUS ABB=ON (L101 OR L102) AND (?AMINE? OR ?NITRILE?)  
L104 2279 SEA FILE=HCAPLUS ABB=ON "CARBOXYLIC ACIDS, PROCESSES"+NT, PFT/C  
T  
L105 13 SEA FILE=HCAPLUS ABB=ON L104(L)SILVER  
L106 1 SEA FILE=HCAPLUS ABB=ON L105 AND FILM?(3A)DEPOSIT?  
L107 1 SEA FILE=HCAPLUS ABB=ON L105 AND (CVD OR CHEM?(3A)VAPOR?)  
L108 16 SEA FILE=HCAPLUS ABB=ON (SILVER OR AG) (3A)?CARBOXYLIC? AND FILM?(3A)DEPOSIT?  
L109 6 SEA FILE=HCAPLUS ABB=ON (SILVER OR AG) (3A)?CARBOXYLIC? AND (CVD OR CHEM?(3A)VAPOR?)  
L110 13 SEA FILE=HCAPLUS ABB=ON L96 OR L103 OR L106 OR L107 OR L109  
L111 3 SEA FILE=HCAPLUS ABB=ON (L101 OR L102 OR L108 OR L109) AND (L81 OR L82)  
L112 13 SEA FILE=HCAPLUS ABB=ON L110 OR L111  
L113 11 SEA FILE=HCAPLUS ABB=ON L95 NOT L112

=> d l113 ibib abs ind hitstr 1-11

L113 ANSWER 1 OF 11 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2007:1261330 HCAPLUS Full-text  
DOCUMENT NUMBER: 148:121310  
TITLE: Synthesis, structure, and theoretical study of lower trifluoromethyl derivatives of [60] fullerene  
Dorozhkin, Evgenii I.; Goryunkov, Alexey A.; Ioffe, Ilya N.; Avdoshenko, Stanislav M.; Markov, Vitaliy Yu.; Tamm, Nadezhda B.; Ignat'eva, Daria V.; Sidorov, Lev N.; Troyanov, Sergery I.  
AUTHOR(S): Chem. Dep., Moscow State Univ., Moscowim, 119992, Russia  
CORPORATE SOURCE: European Journal of Organic Chemistry (2007), (30), 5082-5094  
SOURCE: CODEN: EJOCFK; ISSN: 1434-193X  
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A number of C<sub>60</sub>(CF<sub>3</sub>)<sub>n</sub> compds. with n = 2-10 were synthesized by the reaction of C<sub>60</sub> with silver trifluoroacetate and successfully isolated by HPLC. This resulted in the first crystal structure determination of six lower trifluoromethyl derivatives with n = 2 (single isomer), 4 (two isomers), and 6 (three isomers). A kinetic model of sequential trifluoromethylation based on the Bell-Evans-

Polanyi principle was used to explain the exptl. observed isomeric distribution in the mixts. of C<sub>60</sub>(CF<sub>3</sub>)<sub>n</sub> compds. up to n = 6.

CC 22-8 (Physical Organic Chemistry)  
Section cross-reference(s): 75

ST prepn structure theor trifluoromethyl deriv fullerene; HPLC trifluoromethyl deriv fullerene; liq chromatog trifluoromethyl deriv fullerene

IT Density functional theory  
(PBE; preparation, structure, and theor. study of lower trifluoromethyl derivs. of [60] fullerene)

IT Molecular structure  
(crystallog. and optimized; preparation, structure, and theor. study of lower trifluoromethyl derivs. of [60] fullerene)

IT Sublimation  
(fractional; preparation, structure, and theor. study of lower trifluoromethyl derivs. of [60] fullerene)

IT AM1 (molecular orbital method)

Crystal structure

Evans-Polanyi equation

HPLC

Isomers

Laser desorption mass spectrometry

Regiochemistry

UV and visible spectra  
(preparation, structure, and theor. study of lower trifluoromethyl derivs. of [60] fullerene)

IT Fullerenes  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PUR (Purification or recovery); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(preparation, structure, and theor. study of lower trifluoromethyl derivs. of [60] fullerene)

IT Radicals, reactions  
RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); PROC (Process); RACT (Reactant or reagent)  
(trifluoromethyl mechanistic reaction intermediate; preparation, structure, and theor. study of lower trifluoromethyl derivs. of [60] fullerene)

IT Halomethylation  
Reaction enthalpy  
(trifluoromethylation; preparation, structure, and theor. study of lower trifluoromethyl derivs. of [60] fullerene)

IT 651730-18-6 651730-19-7 915089-72-4 1000417-39-9 1000417-40-2  
1000417-41-3 1000417-42-4 1000417-43-5  
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)  
(crystallog.; preparation, structure, and theor. study of lower trifluoromethyl derivs. of [60] fullerene)

IT 2264-21-3, Trifluoromethyl 651730-16-4 651730-18-6 1000417-45-7  
1000417-49-1  
RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); PROC (Process); RACT (Reactant or reagent)  
(mechanistic reaction intermediate; preparation, structure, and theor. study of lower trifluoromethyl derivs. of [60] fullerene)

IT 165273-86-9 651730-20-0 757216-87-8 757216-91-4 757216-92-5  
913375-86-7 1000417-46-8 1000417-47-9 1000417-48-0 1000417-50-4  
1000417-51-5 1000417-52-6 1000417-53-7 1000417-54-8 1000417-55-9  
1000417-56-0 1000417-57-1 1000417-58-2 1000417-59-3 1000417-60-6

1000417-62-8

RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)  
(preparation, structure, and theor. study of lower trifluoromethyl derivs.  
of [60] fullerene)

IT 757216-88-9P 928757-42-0P 1000417-44-6P

RL: FMU (Formation, unclassified); PRP (Properties); PUR (Purification or recovery); FORM (Formation, nonpreparative); PREP (Preparation)  
(preparation, structure, and theor. study of lower trifluoromethyl derivs.  
of [60] fullerene)

IT 2966-50-9, Silver trifluoroacetate 131159-39-2, Fullerene

RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(preparation, structure, and theor. study of lower trifluoromethyl derivs.  
of [60] fullerene)

IT 2314-97-8, Trifluoromethyl iodide

RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation, structure, and theor. study of lower trifluoromethyl derivs.  
of [60] fullerene)

IT 557787-61-8, Cosmiosil Bucky Prep

RL: TEM (Technical or engineered material use); USES (Uses)  
(preparation, structure, and theor. study of lower trifluoromethyl derivs.  
of [60] fullerene)

REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L113 ANSWER 2 OF 11 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:1164432 HCPLUS Full-text

DOCUMENT NUMBER: 148:68225

TITLE: 5-Nitroaminotetrazole as a building block for extended network structures: Syntheses and crystal structures of a number of heavy metal derivatives

AUTHOR(S): Semenov, Sergey N.; Rogachev, Andrey Yu.; Eliseeva, Svetlana V.; Belousov, Yury A.; Drozdov, Andrey A.; Troyanov, Sergey I.

CORPORATE SOURCE: Department of Chemistry, Moscow State University, Moscow, 119899, Russia

SOURCE: Polyhedron (2007), 26(17), 4899-4907  
CODEN: PLYHDE; ISSN: 0277-5387

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The lead, Hg, Cu and Ag derivs. of 5-nitroaminotetrazole (5-H2NATZ) were obtained by the reaction between the metal nitrate and K 5-nitroaminotetrazolate. The lead and Hg complexes were crystallized and characterized by single crystal x-ray diffraction. The lead complex has a polymeric structure formed by (PbO<sub>2</sub>)<sub>n</sub> chains and anions of 5-NATZ, where each Pb atom is surrounded by ten O atoms. The Hg salt is constructed from neutral (Hg-NATZ)<sub>n</sub> chains, where the Hg atom has a linear coordination. The influence of chemical hardness and charge distribution on the reactivity and coordination properties of 5-NATZ was estimated based on d. functional calcns. The thermal stability of the salts was also studied.

CC 78-5 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 65, 75

ST crystal structure mercury lead nitroaminotetrazolate;  
nitroaminotetrazolate alkali transition metal prepn; nitroaminotetrazole  
complexation heavy transition metal DFT calcn

IT Crystal structure

Molecular structure

(of mercury(II) and lead(II) 5-(nitroamino)tetrazolates)

IT Thermal stability  
(of potassium and heavy metal 5-(nitroamino)tetrazolates)  
IT 122983-12-4 220013-82-1  
RL: PRP (Properties)  
(DFT calcns. equilibrium geometry, charge distribution and chemical hardness)  
IT 959843-16-4P 959843-19-7P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(coordination polymer; preparation, crystal structure, and thermal stability)  
IT 18588-16-4P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and DFT calcns. equilibrium geometry, charge distribution and chemical hardness)  
IT 18264-75-0  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of heavy metal 5-(nitroamino)tetrazolates)  
IT 122774-15-6P 168061-73-2P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of heavy metal 5-(nitroamino)tetrazolates and thermal stability)  
IT 959843-17-5P 959843-18-6P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation of heavy metal 5-(nitroamino)tetrazolates and thermal stability)  
REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L113 ANSWER 3 OF 11 HCPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2006:1134756 HCPLUS Full-text  
DOCUMENT NUMBER: 146:205977  
TITLE: Structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends  
AUTHOR(S): Dorozhkin, Eugenii I.; Ignat'eva, Daria V.; Tamm, Nadezhda B.; Vasiliuk, Natalia V.; Goryunkov, Alexey A.; Avdoshenko, Stanislav M.; Ioffe, Ilya N.; Sidorov, Lev N.; Pattison, Philip; Kemnitz, Erhard; Troyanov, Sergey I.  
CORPORATE SOURCE: Chemistry Department, Moscow State University, Moscow, 119992, Russia  
SOURCE: Journal of Fluorine Chemistry (2006), 127(10), 1344-1348  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 146:205977  
AB A novel isomer of C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub> has been isolated by HPLC from a mixture prepared by trifluoromethylation of C<sub>70</sub> with CF<sub>3</sub>COOAg. The X-ray structure revealed an unprecedented arrangement of CF<sub>3</sub> groups forming a p3mp ribbon. This result provides addnl. evidence of the preferable formation of trifluoromethylated fullerene mols. comprising a single continuous ribbon of edge-sharing para- and meta-C<sub>6</sub>(CF<sub>3</sub>)<sub>2</sub> hexagons.  
CC 22-13 (Physical Organic Chemistry)  
Section cross-reference(s): 75, 78  
ST structure trifluoromethylated fullerene  
IT UV absorption  
(UV-visible; structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique

arrangement of addends)  
IT Formation enthalpy  
(calculated; structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)  
IT Valence  
(free valence index; structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)  
IT Laser ionization mass spectrometry  
(photodesorption, matrix-assisted; structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)  
IT Laser desorption mass spectrometry  
(photoionization, matrix-assisted; structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)  
IT Crystal structure  
(structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)  
IT Fullerenes  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)  
IT Halomethylation  
(trifluoromethylation; structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)  
IT 897926-31-7 897926-33-9 897926-34-0 897926-47-5 897926-48-6  
897926-49-7 897926-50-0 897926-52-2 897926-66-8 897926-68-0  
897926-69-1 897926-70-4 897926-72-6 897926-85-1 897928-52-8  
897928-68-6 922506-82-9 922506-84-1 922506-85-2 922506-87-4  
922506-88-5 922506-89-6 922506-91-0 922506-92-1 922506-93-2  
922506-95-4 922506-97-6 922506-99-8 922507-00-4 922507-02-6  
922507-05-9 922507-10-6 922507-13-9 922507-17-3 922507-21-9  
922507-24-2 922507-28-6 922507-30-0 922507-32-2 922507-35-5  
922507-38-8 922507-40-2 922507-43-5 922507-45-7 922507-47-9  
922507-48-0 922507-50-4 922507-52-6 922507-54-8 922507-59-3  
922507-61-7 922507-71-9  
RL: PRP (Properties)  
(calculated; structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)  
IT 922516-98-1P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(crystallog.; structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)  
IT 115383-22-7, Fullerene-C<sub>70</sub>  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)  
IT 2966-50-9, Silver mono(trifluoroacetate)  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)  
IT 897926-44-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(structure of 1,4,10,19,25,41-C<sub>70</sub>(CF<sub>3</sub>)<sub>6</sub>, isomer with unique arrangement of addends)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TITLE: Crystal Structure and Thermal Stability of Ag<sub>3</sub>(CHF<sub>2</sub>COO)<sub>3</sub>(H<sub>2</sub>O)<sub>2</sub>  
AUTHOR(S): Boltalin, A. I.; Kas'yanov, S. A.; Karpova, E. V.; Troyanov, S. I.  
CORPORATE SOURCE: Moscow State University, Moscow, 119899, Russia  
SOURCE: Russian Journal of Coordination Chemistry (Translation of Koordinatsionnaya Khimiya) (2004), 30(10), 692-697  
CODEN: RJCCYE; ISSN: 1070-3284  
PUBLISHER: MAIK Nauka/Interperiodica Publishing  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB X-ray diffraction anal. of [Ag<sub>3</sub>(CHF<sub>2</sub>COO)<sub>3</sub>(H<sub>2</sub>O)<sub>2</sub>] revealed that its crystals are orthorhombic: space group Cmca, a 13.809(4), b 15.975(2), c 12.244(2) Å, z = 8. The TGA showed that under the atmospheric of N<sub>2</sub> and at 101.3 kPa, Ag difluoroacetate melts at 488 K; the thermal decomposition reaction occurs in the interval 493-548 K with the formation of Ag. Under the mass-spectral experiment conditions at 521 K, two processes occur simultaneously, namely, evaporation and decomposition. The following ions were detected in the mass-spectrum of Ag difluoroacetate: Ag<sup>2+</sup>L<sup>-</sup>, Ag<sup>2+</sup>R<sup>-</sup>, Ag<sup>2+</sup>F<sup>-</sup>, Ag<sup>20+</sup>, Ag<sup>2+</sup>, Ag<sup>+</sup>, LH<sup>+</sup>, RCO<sup>+</sup>, RL<sup>-</sup> (L = CHF<sub>2</sub>COO, R = CHF<sub>2</sub>).

CC 78-5 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 73, 75

ST silver fluoroacetate hydrate prepn structure thermal decompn mass spectrum; crystal structure silver fluoroacetate hydrate

IT Crystal structure

Mass spectra

Molecular structure

Thermal decomposition

(of silver(I) difluoroacetate hydrate)

IT 381-73-7, Difluoroacetic acid

RL: RCT (Reactant); RACT (Reactant or reagent)

(for preparation of silver(I) difluoroacetate hydrate)

IT 845880-52-6P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation, crystal structure, and mass spectrum of thermal decomposition products)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L113 ANSWER 5 OF 11 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:363637 HCPLUS Full-text

DOCUMENT NUMBER: 141:342364

TITLE: Synthesis and crystal structure of copper(II) nitroato complexes NO[Cu(NO<sub>3</sub>)<sub>3</sub>], Na<sub>2</sub>[Cu(NO<sub>3</sub>)<sub>4</sub>], and Ag<sub>2</sub>[Cu(NO<sub>3</sub>)<sub>4</sub>]

AUTHOR(S): Znamenkov, K. O.; Morozov, I. V.; Troyanov, S. I.

CORPORATE SOURCE: Mosk. Gos. Univ. im. M. V. Lomonosova, Moscow, Russia

SOURCE: Zhurnal Neorganicheskoi Khimii (2004), 49(2), 213-220  
CODEN: ZNOKAQ; ISSN: 0044-457X

PUBLISHER: MAIK Nauka/Interperiodica Publishing

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB NO[Cu(NO<sub>3</sub>)<sub>3</sub>], Na<sub>2</sub>[Cu(NO<sub>3</sub>)<sub>4</sub>], and Ag<sub>2</sub>[Cu(NO<sub>3</sub>)<sub>4</sub>] were prepared from HNO<sub>3</sub> solns. containing Cu(NO<sub>3</sub>)<sub>2</sub> or a mixture of Cu(NO<sub>3</sub>)<sub>2</sub> and MnO<sub>3</sub> (M = Na, Ag ).

NO[Cu(NO<sub>3</sub>)<sub>3</sub>] is monoclinic, space group P21/m, Z = 2, R1 = 0.0204.

Na<sub>2</sub>[Cu(NO<sub>3</sub>)<sub>4</sub>] is monoclinic, space group P21/c, Z = 2, R1 = 0.0250.

Ag<sub>2</sub>[Cu(NO<sub>3</sub>)<sub>4</sub>] is triclinic, space group P.hivin.1, Z = 2, R1 = 0.0282.

NO<sub>3</sub>[Cu(NO<sub>3</sub>)<sub>3</sub>] contains an infinite layer of [Cu(NO<sub>3</sub>)<sub>3</sub>]<sub>nn</sub>- . [Cu(NO<sub>3</sub>)<sub>4</sub>] in the other 2 complexes is square planar.  
CC 78-7 (Inorganic Chemicals and Reactions)  
Section cross-reference(s): 75  
ST copper nitrate complex nitrosyl sodium silver prepn structure;  
crystal structure copper nitrate complex nitrosyl sodium silver  
IT Crystal structure  
Molecular structure  
(of copper nitrate complexes with nitrosyl and sodium and  
silver)  
IT 79829-38-2P 770736-39-5P 770736-40-8P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and crystal structure of)  
IT 7697-37-2, Nitric acid, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for preparation of nitrosyl trinitratocuprate)

L113 ANSWER 6 OF 11 HCPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2003:140799 HCPLUS Full-text  
DOCUMENT NUMBER: 139:62034  
TITLE: Synthesis and crystal structure of silver(I)  
carboxylate complexes, Ag(PnBu<sub>3</sub>)<sub>2</sub>[C(CH<sub>3</sub>)<sub>3</sub>COO]  
and Ag(Phen)2[CF<sub>3</sub>COO]<sub>2</sub>  
AUTHOR(S): Paramonov, S. E.; Kuzmina, N. P.;  
Troyanov, S. I.  
CORPORATE SOURCE: Department of Chemistry, Laboratory of Coordination  
Chemistry, Moscow State University, Moscow, 119899,  
Russia  
SOURCE: Polyhedron (2003), 22(6), 837-841  
CODEN: PLYHDE; ISSN: 0277-5387  
PUBLISHER: Elsevier Science Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 139:62034  
AB Ag(PBu<sub>3</sub>)<sub>2</sub>[CMe<sub>3</sub>COO]<sub>2</sub> (I) and Ag(Phen)2[CF<sub>3</sub>COO]<sub>2</sub> (II) were synthesized by the  
reaction of silver(I) carboxylate with the neutral ligand in absolute ether  
and ethanol, resp. Crystal structures of I and II were determined by single  
crystal x-ray diffraction. The crystal structure of I is built up from dimeric  
units in which two Ag(PBu<sub>3</sub>)<sub>2</sub>[CMe<sub>3</sub>COO]<sub>2</sub> mols. are linked by two Ag-O bonds (2.626  
Å). The closest coordination environment of the silver atom consists of two  
oxygen atoms with average Ag-O distances of 2.38 Å and one phosphorous atom  
with a Ag-P distance of 2.326 Å. The crystal structure of II is formed by  
infinite rows of [Ag(Phen)<sub>2</sub>]<sup>+</sup> cations between which [CF<sub>3</sub>COO]<sub>2</sub><sup>-</sup> anions are  
arranged. Relations between volatility and crystal structures of I and II are  
discussed.  
CC 78-7 (Inorganic Chemicals and Reactions)  
Section cross-reference(s): 75  
ST silver pivalate fluoroacetate phosphine phenanthroline prepn  
structure; carboxylate silver prepn structure thermolysis;  
crystal structure silver pivalato trifluoroacetate  
IT Crystal structure  
Molecular structure  
Thermal decomposition  
(of silver pivalato tributylphosphine complex and  
silver phenanthroline trifluoroacetate salt)  
IT Molecular structure-property relationship  
(volatility; of silver pivalato tributylphosphine complex and  
silver phenanthroline trifluoroacetate salt)  
IT 544671-55-8P  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP

(Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)  
(preparation, crystal structure and sublimation)

IT 544679-46-1P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation, crystal structure and thermal decomposition)

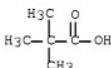
IT 2966-50-9, Silver trifluoroacetate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for preparation of bis(phenanthroline)silver(I) trifluoroacetate salt)

IT 998-40-3, Tributylphosphine 7324-58-5, Silver(I) pivalate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for preparation of silver pivalato tributylphosphine complex)

IT 7324-58-5, Silver(I) pivalate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for preparation of silver pivalato tributylphosphine complex)

RN 7324-58-5 HCPLUS

CN Propanoic acid, 2,2-dimethyl-, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L113 ANSWER 7 OF 11 HCPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2001:861432 HCPLUS Full-text  
DOCUMENT NUMBER: 136:140609  
TITLE: Thermodynamic study of silver pivalate and its complex with tri(n-butyl)phosphine  
AUTHOR(S): Malkerova, I. P.; Paramonov, S. E.; Alikhanyan, A. S.; Kuz'mina, N. P.  
CORPORATE SOURCE: Inst. Obshchei i Neorg. Khim. im. N. S. Kurnakova, RAN, Moscow, Russia  
SOURCE: Zhurnal Neorganicheskoi Khimii (2001), 46(10), 1700-1703  
PUBLISHER: MAIK Nauka/Interperiodica Publishing  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
AB The authors used the Knudsen effusion method and gas-phase mass spectrometric anal. to study thermodyn. characteristics of  $(CH_3)_3CCOOAg$  and its complex  $(CH_3)_3CCOOAg:P(n-Bu)_3$ . The sublimation enthalpies of these compds. were determined as well as the composition of the gas phase and the partial pressures; the complex sublimes congruently. A comparative anal. of the thermal stability of the two compds. was done.  
CC 69-2 (Thermodynamics, Thermochemistry, and Thermal Properties)

Section cross-reference(s): 67, 78

ST thermodyn silver pivalate complex butyl phosphine; sublimation enthalpy silver pivalate complex butyl phosphine; thermal decompn enthalpy silver pivalate

IT Partial pressure

Sublimation enthalpy

Thermal decomposition

Thermal decomposition enthalpy  
(thermodn. study of silver pivalate and its complex with tri(n-butyl)phosphine)

IT 380376-07-8

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); FYP (Physical process); PROC (Process)  
(thermodn. study of silver pivalate and its complex with tri(n-butyl)phosphine)

IT 7324-58-5, Silver pivalate

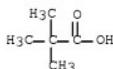
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); FYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(thermodn. study of silver pivalate and its complex with tri(n-butyl)phosphine)

IT 7324-58-5, Silver pivalate

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); FYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
(thermodn. study of silver pivalate and its complex with tri(n-butyl)phosphine)

RN 7324-58-5 HCPLUS

CN Propanoic acid, 2,2-dimethyl-, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

L113 ANSWER 8 OF 11 HCPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2001:430162 HCPLUS Full-text  
 DOCUMENT NUMBER: 135:174284  
 TITLE: Synthesis and structure of acetonitrile solvates of copper(II) monofluoroacetate and silver(I) trifluoroacetate, [Cu<sub>2</sub>(CH<sub>2</sub>FCOO)<sub>4</sub> · 2CH<sub>3</sub>CN](CH<sub>3</sub>CN) and Ag<sub>3</sub>(CF<sub>3</sub>COO)<sub>3</sub>(CH<sub>3</sub>CN) · 2  
 AUTHOR(S): Karpova, E. V.; Boltalina, A. I.; Korenev, Yu. M.;  
 Zakharov, M. A.; Troyanov, S. I.  
 CORPORATE SOURCE: Moscow State University, Moscow, 119899, Russia  
 SOURCE: Russian Journal of Coordination Chemistry (Translation of Koordinatsionnaya Khimiya) (2001), 27(4), 286-291  
 CODEN: RJCEY; ISSN: 1070-3284  
 PUBLISHER: MAIK Nauka/Interperiodica Publishing  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 135:174284

AB [Cu<sub>2</sub>(CH<sub>2</sub>FCOO)<sub>4</sub>·2MeCN](MeCN) (1) and Ag<sub>3</sub>(CF<sub>3</sub>COO)<sub>3</sub>(MeCN)<sub>2</sub> (2) were synthesized and studied by x-ray structural anal. Crystals 1 are monoclinic, space group C<sub>2</sub>/c,  $a = 27.854(6)$ ,  $b = 8.286(2)$ ,  $c = 19.428(4)$  Å,  $\beta = 106.82(3)^\circ$ ,  $Z = 8$ ,  $R_1 = 0.0426$ ; crystals of 2 are triclinic, space group P.hivin.1,  $a = 8.676(2)$ ,  $b = 9.819(2)$ ,  $c = 11.961(2)$  Å,  $\alpha = 95.27(3)$ ,  $\beta = 109.59(3)$ ,  $\gamma = 104.60(3)^\circ$ ,  $Z = 2$ ,  $R_1 = 0.0252$ . 1 is composed of the structural units (lanterns) typical of Cu(II) carboxylates. The presence of an addnl. MeCN mol. noncoordinated by the Cu atoms makes it possible to consider 1 as a lattice clathrate. 2 Has no analogs among the Ag carboxylates. It simultaneously contains Ag atoms with coordination nos. varying from 2 to 4.

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 75

ST crystal structure copper silver fluoroacetate acetonitrile; copper monofluoroacetato acetonitrile dinuclear prepn structure; silver trifluoroacetato acetonitrile polymeric prepn structure

IT Crystal structure

Molecular structure

(of copper(II) monofluoroacetate and silver(I) trifluoroacetate acetonitrile complexes)

IT 353793-50-7P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and crystal structure)

IT 353793-53-0P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and crystal structure of polymeric)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L113 ANSWER 9 OF 11 HCPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:147349 HCPLUS [Full-text](#)

DOCUMENT NUMBER: 134:304637

TITLE: Synthesis and thermal stability of silver carboxylates: crystal structure of silver pivalate

AUTHOR(S): Paramonov, S. E.; Mychlo, E. V.; Troyanov, S. I.; Kuz'mina, N. P.

CORPORATE SOURCE: Mosk. Gos. Univ. im. M. V. Lomonosova, Moscow, Russia

SOURCE: Zhurnal Neorganicheskoi Khimii (2000), 45(12), 2003-2008

PUBLISHER: MAIK Nauka/Interperiodica Publishing

DOCUMENT TYPE: Journal  
LANGUAGE: Russian

AB The reaction of aqueous solns. of AgNO<sub>3</sub> and K carboxylates gave Ag (O<sub>2</sub>CR) (R = Pr, iso-Pr, tert-Bu, iso-Bu) which were characterized by IR spectra, thermal anal. and elemental anal. The crystal structure of Ag(O<sub>2</sub>CBu) was determined [triclinic, space group P.hivin.1,  $Z = 4$ ,  $R_1 = 0.0517$ ,  $wR_2 = 0.1515$ ]. The crystal structure consists of a polymeric chain, formed by silver pivalate dimers. The thermal decomposition of Ag(O<sub>2</sub>CR) was studied in N under 1 atmospheric pressure; the carboxylates decompose to Ag at 120-250°. With increased pressure Ag(O<sub>2</sub>CR) sublime ate 220-250° and 0.01 mm pressure. The thermal stability and volatility of the carboxylates increased in the series iso-Pr < Pr < tert-Bu < iso-Bu.

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 75

ST silver carboxylate prepn thermal stability volatility; crystal structure silver pivalate

IT Crystal structure

Molecular structure

(of silver pivalate)

IT Sublimation  
Thermal decomposition  
Thermal stability  
Volatility  
(silver carboxylates)

IT Carboxylic acids, preparation  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(silver; preparation and thermal decomposition and volatility)

IT 5076-24-4P 24418-71-1P 334874-23-6P  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(preparation and thermal decomposition and volatility)

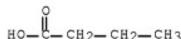
IT 7324-58-5P  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(preparation and thermal decomposition and volatility and crystal structure)

IT 589-39-9, Potassium butyrate 19455-20-0, Potassium isobutyrate  
19455-22-2 19455-23-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for preparation of silver carboxylates)

IT 5076-24-4P 24418-71-1P 334874-23-6P  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
(preparation and thermal decomposition and volatility)

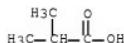
RN 5076-24-4 HCPLUS

CN Butanoic acid, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

RN 24418-71-1 HCPLUS  
CN Propanoic acid, 2-methyl-, silver(1+) salt (1:1) (CA INDEX NAME)



● Ag(I)

RN 334874-23-6 HCPLUS  
CN Butanoic acid, 2-methyl-, silver(1+) salt (1:1) (CA INDEX NAME)



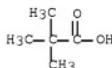
## ● Ag(I)

IT 7324-58-5P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)  
 (preparation and thermal decomposition and volatility and crystal structure)

RN 7324-58-5 HCAPLUS

CN Propanoic acid, 2,2-dimethyl-, silver(1+) salt (1:1) (CA INDEX NAME)



## ● Ag(I)

L113 ANSWER 10 OF 11 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:172088 HCAPLUS [Full-text](#)

DOCUMENT NUMBER: 130:231385

TITLE: Silver(I) mono- and trifluoroacetates:  
 thermal stability and crystal structureAUTHOR(S): Karpova, E. V.; Boltalin, A. I.; Korenev, Yu. M.;  
 Troyanov, S. I.

CORPORATE SOURCE: Moscow State University, Moscow, 119899, Russia

SOURCE: Russian Journal of Coordination Chemistry (Translation  
 of Koordinatsionnaya Khimiya) (1999), 25(1), 65-68

CODEN: RJCEY; ISSN: 1070-3284

PUBLISHER: MAIK Nauka/Interperiodica Publishing

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ag mono- and trifluoroacetates  $\text{AgO}_2\text{CCH}_2\text{F}$  (I) and  $\text{AgO}_2\text{CCF}_3$  (II) were synthesized. The compds. were studied by DTA, x-ray powder and single-crystal diffraction, and high-temperature mass spectrometry. Metallic Ag and Ag fluoride are the products of thermal decomposition of I and II, resp. The composition of saturated vapor was determined for II; I decompns. on heating, but not sublimes. The crystal structures of the compds. were determined

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 75

ST silver fluoroacetate prep structure thermal decompr; crystal  
 structure silver fluoroacetate

IT Crystal structure

Molecular structure

Thermal decomposition

(of silver fluoroacetates)

IT 38845-51-1P 221073-81-0P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation); RACT (Reactant or reagent)  
(preparation and crystal structure and thermal decomposition)  
IT 76-05-1, reactions 144-49-0, Fluoroacetic acid 20667-12-3,  
Silver oxide (Ag2O)  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for preparation of silver fluoroacetates)  
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L113 ANSWER 11 OF 11 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1999:131299 HCAPLUS Full-text  
DOCUMENT NUMBER: 130:245549  
TITLE: Synthesis and crystal structure of metal(I) hydrogen  
sulfates. Ag(H3O)(HSO<sub>4</sub>)<sub>2</sub>, Ag<sub>2</sub>(HSO<sub>4</sub>)<sub>2</sub>(H<sub>2</sub>SO<sub>4</sub>),  
AgHSO<sub>4</sub>, and Hg<sub>2</sub>(HSO<sub>4</sub>)<sub>2</sub>  
AUTHOR(S): Stiewe, A.; Kennitz, E.; Troyanov, S.  
CORPORATE SOURCE: Institut Chemie, Humboldt-Universitaet, Berlin,  
D-10115, Germany  
SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie  
(1999), 625(2), 329-335  
CODEN: ZAACAB; ISSN: 0044-2313  
PUBLISHER: Johann Ambrosius Barth  
DOCUMENT TYPE: Journal  
LANGUAGE: German  
AB Ag(H3O)(HSO<sub>4</sub>)<sub>2</sub>, Ag<sub>2</sub>(HSO<sub>4</sub>)<sub>2</sub>.(H<sub>2</sub>SO<sub>4</sub>), and AgHSO<sub>4</sub> were synthesized from Ag<sub>2</sub>SO<sub>4</sub>  
and H<sub>2</sub>SO<sub>4</sub>. Hg<sub>2</sub>(HSO<sub>4</sub>)<sub>2</sub> was obtained from metallic Hg and 96% H<sub>2</sub>SO<sub>4</sub> as starting  
materials. The compds. were characterized by x-ray single crystal structure  
determination. Ag(H3O)(HSO<sub>4</sub>)<sub>2</sub> belongs to the structure type of Na(H3O)(HSO<sub>4</sub>).  
The Ag atom is coordinated by 6 + 2 O atoms. In the structure, there are  
dimers and chains of H-bonded HSO<sub>4</sub>- tetrahedra. Dimers and chains are  
connected by the H3O<sup>+</sup> ion to form a 3D H network. Ag<sub>2</sub>(HSO<sub>4</sub>)<sub>2</sub>(H<sub>2</sub>SO<sub>4</sub>)  
crystallizes isotopic to Na<sub>2</sub>(HSO<sub>4</sub>)<sub>2</sub>(H<sub>2</sub>SO<sub>4</sub>). The coordination number of Ag is  
6 + 1. The structure of Ag<sub>2</sub>(HSO<sub>4</sub>)<sub>2</sub>(H<sub>2</sub>SO<sub>4</sub>) is characterized by H-bonded  
trimers of HSO<sub>4</sub>- tetrahedra, which are further connected to chains. For the  
recently published structure of AgHSO<sub>4</sub> the H bonding system was discussed.  
There are tetrameres and chains, connected by bifurcated H bonds. The  
structure of Hg<sub>2</sub>(HSO<sub>4</sub>)<sub>2</sub> contains Hg<sup>2+</sup> cations with Hg-Hg distance of 2.509 Å.  
Every Hg atom is coordinated by 1 O atom at shorter distance (2.18 Å) and 3 O  
atoms at longer distances (2.57 to 3.08 Å). The HSO<sub>4</sub>- tetrahedra form zigzag  
chains by H bonds.

CC 78-5 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 75

ST bisulfate mercury silver prepn crystal structure; sulfate  
mercury silver prepn crystal structure; hydrogen bonding mercury  
silver bisulfate

IT Crystal structure

(of mercury/silver bisulfates)

IT 16156-13-1P 55605-38-4P 221231-16-9P 221231-23-8P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and crystal structure of)

IT 7439-97-6, Mercury, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for preparation of mercury bisulfate)

IT 7664-93-9, Sulfuric acid, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for preparation of mercury/silver bisulfates)

IT 10294-26-5, Silver sulfate

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for preparation of silver bisulfates)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS

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RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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